CLAIM AMENDMENTS

Claim 1 (Cancelled).

2. (Currently Amended) ~~The~~ A photoelectric encoder ~~according to claim 1~~ for detecting magnitude of movement of an object, the encoder comprising:

a scale that generates a periodic light-intensity distribution pattern having a pitch P upon irradiation by light emitted from a light source; and

a plurality of light-detecting segment groups that are shifted relative to said scale to generate phase signals having fixed phase differences from each other so that the magnitude of movement of the object is detected based on the phase signals with the fixed phase differences from each other, wherein

a plurality of light-detecting segments having the same phase are positioned as each of said plurality of light-detecting segment groups,

each light-detecting segment group includes at least two of said plurality of light-detecting segments adjacent to each other, and

said light-detecting segment groups ~~have~~ having fixed phase differences~~, and~~ have respective area centers of gravity, on a phase axis, ~~of said plurality of areas of the light-detecting segment groups having a fixed relationship in phase difference to each other,~~ that are coincident with each other.

3. (Currently Amended) ~~The~~ A photoelectric encoder ~~according to claim 1~~ for detecting magnitude of movement of an object, the encoder comprising:

a scale that generates a periodic light-intensity distribution pattern having a pitch P upon irradiation by light emitted from a light source; and

a plurality of light-detecting segment groups that are shifted relative to said scale to generate phase signals having fixed phase differences from each other so that the magnitude of movement of the object is detected based on the phase signals with the fixed phase differences from each other, wherein

a plurality of light-detecting segments having the same phase are positioned as each of said plurality of light-detecting segment groups,

each light-detecting segment group includes at least two of said plurality of light-detecting segments adjacent to each other, and

said light-detecting segment groups ~~have~~ having fixed phase differences~~, and~~ have respective area centers of gravity, on a phase axis, ~~of areas of said plurality of said light-detecting segment groups having a fixed relationship in phase difference to each other~~, that

are arranged symmetrically in position with respect to a center axis of the light-intensity distribution pattern.

4. (Currently Amended) ~~The~~ A photoelectric encoder ~~according to claim 1~~ for detecting magnitude of movement of an object, the encoder comprising:

a scale that generates a periodic light-intensity distribution pattern having a pitch P upon irradiation by light emitted from a light source; and

a plurality of light-detecting segment groups that are shifted relative to said scale to generate phase signals having fixed phase differences from each other so that the magnitude of movement of the object is detected based on the phase signals with the fixed phase differences from each other, wherein

a plurality of light-detecting segments having the same phase are positioned as each of said plurality of light-detecting segment groups,

each light-detecting segment group includes at least two of said plurality of light-detecting segments adjacent to each other,

a center distance between center positions of the light-detecting segments located adjacent to each other and having the same phase is equal to the pitch P, and

a center distance between center positions of the light-detecting segments located adjacent to each other and located at the respective ends of different light-emitting segment groups having different phases is equal to 5P/4.

5. (Currently Amended) ~~The~~ A photoelectric encoder ~~according to claim 1, including~~ for detecting magnitude of movement of an object, the encoder comprising:

a scale that generates a periodic light-intensity distribution pattern having a pitch P upon irradiation by light emitted from a light source;

a plurality of light-detecting segment groups that are shifted relative to said scale to generate phase signals having fixed phase differences from each other so that the magnitude of movement of the object is detected based on the phase signals with the fixed phase differences from each other, wherein

a plurality of light-detecting segments having the same phase are positioned as each of said plurality of light-detecting segment groups, and

each light-detecting segment group includes at least two of said plurality of light-detecting segments adjacent to each other; and

a cross-talk preventing portion in said light-detecting segment groups, ~~a cross-talk preventive portion~~ integrally located in spaces between respective light-detecting segments located adjacent to each other.

6. (Currently Amended) The photoelectric encoder according to claim 5, wherein said cross-talk ~~preventive~~ preventing portion is a ~~vapor-deposition~~ vapor-deposited film member.

7. (Currently Amended) The photoelectric encoder according to claim 5, wherein said cross-talk ~~preventive~~ preventing portion is ~~a~~ an etched signal-light shielding member ~~formed by etching~~.

8. (Currently Amended) The photoelectric encoder according to claim ~~1~~ 2, including ~~form~~ four of said light-detecting segment groups that respectively correspond to four phase signals, and, when using one of the four phases as a reference phase, the phases of the other three signals are ~~set to~~ 90°, 180°, and 270°.

9. (Currently Amended) The photoelectric encoder according to claim ~~1~~ 2, wherein width of each light-detecting segment is ~~set to~~ approximately 1/2 of the pitch P.

10. (New) The photoelectric encoder according to claim 3, including four of said light-detecting segment groups that respectively correspond to four phase signals, and, when using one of the four phases as a reference phase, the phases of the other three signals are 90°, 180°, and 270°.

11. (New) The photoelectric encoder according to claim 3, wherein width of each light-detecting segment is approximately 1/2 of the pitch P.

12. (New) The photoelectric encoder according to claim 4, including four of said light-detecting segment groups that respectively correspond to four phase signals, and, when using one of the four phases as a reference phase, the phases of the other three signals are 90°, 180°, and 270°.

13. (New) The photoelectric encoder according to claim 4, wherein width of each light-detecting segment is approximately 1/2 of the pitch P.

14. (New) The photoelectric encoder according to claim 5, including four of said light-detecting segment groups that respectively correspond to four phase signals, and, when using one of the four phases as a reference phase, the phases of the other three signals are 90°, 180°, and 270°.

15. (New) The photoelectric encoder according to claim 5, wherein width of each light-detecting segment is approximately 1/2 of the pitch P.